Weather

4-4 The student will demonstrate an understanding of weather patterns and phenomena. (Earth Science)

4-4.6 Predict weather from data collected through observation and measurements.
Taxonomy level: 2.5-B Understand Conceptual Knowledge

Previous/Future knowledge: Students have not done any weather predicting in previous grades. In 2nd grade (2-3.3), students illustrated the weather conditions of different seasons. In 6th grade (6-4.6), students will predict weather conditions and patterns based on weather data collected from direct observations and measurements, weather maps, satellites, and radar.

It is essential for students to know that using data collected through daily or long term observations and measurements, patterns in weather can be seen. Weather predictions are based on qualitative and quantitative collected data; they are not just guesses.

- Some weather signs can be seen by looking at clouds (4-4.2).
- Changes in wind speed or wind direction can indicate storms or temperature changes.
- Meteorologists interpret information from a variety of sources and use those sources to make predictions. The information they use is shown on a weather map.
- Weather maps may show large masses of warm or cold moving air. Lines between the air masses are called *fronts*.
  - When a warm front passes over an area, the air temperature increases.
  - When a cold front passes over an area, the air temperature decreases.
- Data related to temperature and precipitation can also be found on a weather map.

It is not essential for students to know how to read weather map data related to air pressure, how fronts form, how the air masses move in each type of front, stationary or occluded fronts, how to interpret station models, or how to track a hurricane from data.

Assessment Guidelines:
The objective of this indicator is to *predict* weather from data collected through observation and measurements; therefore, the primary focus of assessment should be to take data collected by students or professionals and use that information to show what the weather might be. However, appropriate assessments should also require students to *interpret* some basic information (temperature, precipitation, cold/warm front, sky conditions) on weather maps using a key; or *infer* weather conditions from collected weather data.